be a technical comparison of the two bands.[89/] The Motorola report concludes that "most 2 GHz point-to-point radio links should be able to be moved to 6 GHz while maintaining equivalent path availability.

UTC strongly disagrees with the conclusions of the Motorola report. The report is a gross overstatement based on average terrain. It does not consider other factors that must be considered when engineering 2 GHz and 6 GHz microwave systems such as temperature inversions, thermal ducting, rain fade, distance or terrain. The reports conclusions simply do not hold true for many applications and leads to the inaccurate conclusion that spectrum in the 6 GHz band is the same as spectrum in the 2 GHz band.

In addition to the technical limitations of the higher microwave bands, there are also a number of real world practical limitations on the use of higher bands that the OET Study and the NPRM gloss over. For example, McCaw explains that zoning laws may limit the ability to install new towers or modify existing towers, thereby impeding the ability to install intermediate hops or larger multiple antennas required by microwave systems at 4 and 6 GHz. As McCaw notes, zoning officials are reluctant to approve replacement of small dish antennas with large conspicuous

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[89/] Motorola, Appendix B.

drum antennas required at higher frequencies.[90/] Further, APPA reports that it would be impossible for many of its members to construct additional tower and transmitter facilities because of terrain, flight path restrictions and environmental restrictions.[91/]

### 3. There Is Nearly Unanimous Agreement That The Common Carrier Bands Are Not Adequate

In addition to the reliability problems associated with relocating the existing 2 GHz users to higher microwave bands generally, there are also several problems with the technical and operational requirements of these bands as presently configured.

Virtually all parties agree that the 4 and 6 GHz common carrier microwave bands, as presently configured, are not suitable as replacement spectrum for the more than 22,000 private microwave facilities currently licensed in the 2 GHz band. AAR notes that the technical rules applicable to these bands contain channelization and loading requirements which make their use wholly incompatible by private fixed microwave licensees.[92/]

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[90/] McCaw, p. 29, n. 33.

[91/] APPA, p. 13.

[92/] AAR, pp. 35-37.

Similarly, Alcatel points out that the bands above 3 GHz are channelized for high capacity systems, and as such are not suited to the low and medium capacity systems currently licensed in the 2 GHz band. Thus, Alcatel argues the Commission's proposal of a "blanket" waiver regarding the eligibility of displaced 2 GHz microwave users to access the higher microwave bands while maintaining existing frequency coordination and path length requirements for these bands is unacceptable. Alcatel urges the FCC to amend its Rules to make provision in the bands above 3 GHz for displaced low and medium capacity 2 GHz systems.[93/]

LPPC notes that another fundamental problem with the relocation bands proposed by the Commission is that the 4 GHz common carrier band is currently used extensively by satellite receive-only earth stations. LPPC argues that the existence of satellite receivers in this band raises the question as to whether this band would provide any relocation spectrum for displaced 2 GHz users.[94/]

LPPC also notes that in apparent recognition of the inadequacy of the NPRM's relocation proposal, the FCC in its letter of April 20, 1992, to Senator Ernest F.

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[93/] Alcatel, p. 28.

[94/] LPPC, pp. 36-37.

Hollings, acknowledged the need for more study and further action to facilitate the migration of incumbent users to the higher microwave bands. LPPC maintains that this statement is, in essence, an admission by the Commission that it acted prematurely in the NPRM.[95/]

In light of the many problems associated with the Commission's current relocation proposal, UTC reiterates its request that the Commission defer all further action in this docket and commence a separate rulemaking to address the specific operational and technical rule changes that would have to take place prior to any meaningful relocation.

4. Fiber Is Not A Suitable Replacement

In a footnote to the NPRM, the Commission states that it encourages 2 GHz microwave users to consider the use of fiber optics to meet their telecommunications needs. UTC's comments emphasized that while utility use of fiber optics is growing, it is not a viable alternative to utility use of the 2 GHz band.

A number of the comments echo UTC's position that the availability of right-of-way, reliability, and cost all

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[95/] LPPC, p. 37.

limit the use of fiber as a wholesale replacement for 2 GHz microwave.[96/]

While microwave operates line-of-sight, fiber optic systems are limited to whatever paths are available. PSMC notes that fiber is simply inappropriate for connecting many locations currently linked by microwave, such as remote mountain-top radio transmitters.[97/] Furthermore, to install a fiber optic system, continuous right-of-way must be obtained between all points on the system. PSMC explains that securing right-of-way can be extraordinarily difficult even with the power of eminent domain.[98/]

It must also be noted that for purposes of reliability the fiber optic system must be in a looped configuration in order to provide redundancy. The necessity of a looped architecture further limits the practical ability to obtain a right-of-way to install a fiber optic system.

In addition to the significant terrain and right-of-way problems, there are also substantial reliability concerns associated with the deployment of fiber. LPPC

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[96/] AAR, pp. 38-40; AGA, pp. 6-7; API, pp. 17-18; EEI, pp. 14-15; INGAA, p. 9; LPPC, pp. 39-40; McCaw, p. 16; NRECA, p. 7; and PSMC, pp. 19-20.

[97/] PSMC, p. 20.

[98/] PSMC, p. 20.

points out that fiber is often not an acceptable replacement for electric utility microwave systems because it is much more susceptible to extended outages, as a result of breaks and cuts.[99/] As UTC detailed in its comments, outages of more than a few seconds at a time are unacceptable for utilities relying on their communications systems to support time-critical telemetry and switching functions.

Further, UTC noted that it has recently been discovered that fiber optic is often not a suitable replacement for analog microwave systems that are used to link land mobile simulcast transceiver sites. This is because fiber optic cables suffer from a temperature reaction such that a temperature excursion between 40 degrees F and 70 degrees F results in a change in the fiber's index of refraction, which causes a change in the effective transmission path distances of 1.8 meters per every 10 kilometers of fiber optic cable. This variation causes sufficient phasing differences between simulcast base station sites to garble and make unintelligible the transmitted simulcast voice communications.[100/]

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[99/] PPC, pp. 39-40.

[100/] A report from Corning Incorporated, a major supplier of fiber optic cable, which explains this phenomenon is appended to UTC's comments as Attachment B.

The final obstacle to the use of fiber as a replacement for 2 GHz microwave is its prohibitive expense. AAR notes that while the OET average of $40,000 per mile may be an appropriate cost for all installations, rural and urban alike, it is not an accurate estimate for urban installations. AAR says that total costs for some of its members to install fiber in urban areas have run in excess of $125,000 per mile.[101/] Further, it is important to note that in estimating the costs to replace a microwave system with fiber, it is not simply a matter of multiplying the microwave path distance by the per-mile cost estimate. Because of the need to have a looped system with geographically alternate routing, and using any available right-of-way, the fiber milage will be more than twice the microwave path distance.

To the extent cost is the only barrier to the use of fiber instead of fixed microwave, UTC has suggested that federal preemption would help promote the use of fiber by permitting the owner of the fiber system to lease its reserve or excess fiber capacity. If the Commission truly wants to encourage the use of non-spectrum dependant technology, it must act to preempt state regulation which would interfere with users' ability to make the most efficient use of those technologies.

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[101/] AAR, p. 38.

As noted in UTC's Comments, state regulation of private carrier fiber optic communications services has presented a significant barrier to the deployment of private fiber optic communications systems.[102/] As the OET Study points out, fiber optic communications systems are very expensive, and unless the user has need for the tremendous capacity available with these systems, this cost cannot be justified. Unfortunately, restrictive state regulations on the provision of private carrier fiber optic service or even the lease of dark fibers, have discouraged many public utilities from installing fiber optic facilities.

Federal preemption is clear in the case of private carrier microwave systems,[103/] and interstate private carrier fiber optic systems,[104/] but is not well-settled with respect to private carrier fiber optic systems operated wholly intrastate.[105/] Under current FCC policy, federal preemption is available, if at all, only if the

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[102/] UTC, pp. 59-61.

[103/] First Report and Order in PR Docket No. 83-426, 50 Fed. Reg. 13,338 (April 4, 1985).

[104/] NorLight, 2 FCC Rcd 132, aff'd FCC 87-240 (1987).

[105/] In Public Service Company of Oklahoma, 3 FCC Rcd 2327 (PR Bureau 1987), app. for review pending, the Private Radio Bureau preempted state regulation of a "hybrid" fiber/microwave system.

fiber optic system is used to provide interstate communications or if interconnected with private microwave in a "hybrid" fiber/microwave system.

The time has come for the Commission to use its authority under Title III of the Communications Act to preempt state regulations that discourage the use of private fiber optic systems and that therefore encourage the use of federally-regulated, and increasingly scarce, private microwave spectrum. As part of the Commission's purported efforts to facilitate the migration from 2 GHz microwave into other microwave bands or non-radio media, the Commission has an excellent opportunity, through the record established in this docket, to preempt state regulation of private fiber optic systems.

Section 2(b) of the Communications Act, 47 U.S.C. §152(b), would not bar such federal preemption since neither the offering of private carrier communications service by a non-common carrier, nor the leasing of dark fibers[106/] by a non-common carrier would involve the rendering of a common carrier communications service, or the offering of a service by a communications common

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[106/] "Dark fiber" is defined as the "unpowered" physical fiber optic cable, containing none of the electronics which must be used to transmit communications across the cable. Supplemental Order Designating Issues for Investigation in CC Docket No. 88-136, 3 FCC Rcd 6066, 6067 n.2 (1988).

carrier.[107] Preemption would be limited to that necessary to encourage the use of non-spectrum dependent communications media by non-common carriers who elect to share fiber capacity or fiber optic facilities on a non-profit, cost-sharing basis or on a private carrier basis. The Commission should also clarify that the leasing of "dark fiber" is not a communications service which would even potentially be subject to state regulation.[108]

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[107] Cf. California v. FCC, 905 F.2d 1217 (9th Cir. 1990). Under the reasoning of the Ninth Circuit's decision, states would be permitted to regulate the non-common carrier dark fiber activities of common carrier service providers, such as local exchange carriers, but would not be permitted to interpose Section 2(b) as a bar to federal preemption of state regulation of non-common carrier communications services offered by non-common carriers.

Under a strained reading of this decision, some parties might argue that states retain jurisdiction over all intrastate services, private or common carrier, and whether provided by a carrier or a non-carrier. However, the plain meaning of Section 2(b)(1), coupled with the court's emphasis on the identity of the service provider, leads to the conclusion that the states' authority is not so broad.

[108] The lease of dark fiber does not involve the for-hire transmission of signals, and is essentially the leasing of physical hardware; i.e., optical fibers. In Docket No. 88-136, the Commission accepted jurisdiction over the dark fiber offerings of local exchange carriers, principally because the carriers had voluntarily filed tariffs for their dark fiber offerings. However, the FCC specifically declined to address whether it has Title II jurisdiction to compel carriers to file tariffs regarding dark fiber. It is even less clear that non-carriers, such as energy utilities, would be subject to Title II jurisdiction concerning their dark fiber arrangements. Pursuant to its Title III jurisdiction, however, the Commission would have jurisdiction to preempt any state policy which would restrict the ability of non-common carriers to offer spectrum-conserving dark fiber leasing arrangements.

5. Tax Certificates

There was wide-spread agreement among the commenters that the Commission should award tax certificates to fixed microwave licensees who receive compensation from an entity seeking to use the spectrum for new technology as part of an agreement to surrender their license and use other, non-radio alternative media. Moreover, many of the commenters agree with UTC's position that the availability of such tax certificates should not be limited to transactions involving a shift to non-radio alternative media such as fiber optics, but should be equally available for transactions involving a shift to other radio frequencies. In support of this position GTE notes that the move to higher frequencies also furthers the Commission's objectives in the NPRM.[109/]

6. Federal Government Spectrum Should Be Opened As Replacement Spectrum

UTC's comments urged the Commission and NTIA to aggressively pursue negotiations regarding shared use of the 1.71-1.85 GHz Federal government band between existing Federal government users and displaced 2 GHz microwave users. This position was also strongly supported by a number of commenters. API for example, argues that should

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[109/] GTE, p. 21.

the Commission feel compelled to allocate the 2 GHz band for new technologies, the 1.71-1.85 GHz band would be the most desirable relocation spectrum for displaced microwave operators since the propagation characteristics of this band closely approximate those of the 2 GHz band.[110/]

NTIA states in its comments, and UTC agrees, that NTIA is the appropriate authority to conduct an analysis of the use and availability of spectrum under its jurisdiction.[111/] UTC is therefore pleased that the NTIA has commenced its own evaluation of the 1.75-1.85 GHz band in order to determine whether it is possible to place some private fixed microwave links into this band, particularly those that, because of long path lengths, cannot be operated reliably in the higher frequencies.[112/]

In light of NTIA's decision to analyze the feasibility of utilizing the 1.71-1.85 GHz band as possible relocation spectrum for displaced 2 GHz microwave users, UTC urges the Commission to defer any further action regarding a reallocation of the 2 GHz band pending the publication of NTIA's analysis. To do otherwise would ignore the fact that in the NPRM the Commission specifically requested

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[110/] API, pp. 12-13.

[111/] NTIA, p. 18.

[112/] NTIA, p. 20.

comment on the feasibility of making a portion of the 1.71-1.85 GHz band available for relocation of existing 2 GHz operations,[113] and NTIA has asserted that it is the only competent authority to conduct such an analysis.

In addition to the 1.71-1.85 GHz band, UTC reiterates its request that the Commission's negotiations with NTIA include a portion of the 3.6-3.7 GHz band as possible replacement spectrum for displaced 2 GHz users. The 3.6-3.7 GHz band is currently allocated for use on a shared basis by both Federal government and non-Federal government users. It is UTC's understanding that this band is not heavily loaded and would provide propagation characteristics that are superior to the 6 GHz microwave band.

## III. Proposed Transition Plans

### A. The FCC's Proposed Transition Plan Is Unworkable

In its Comments, UTC pointed out the deficiencies in the FCC's proposed relocation plan for private fixed microwave systems. Other commenters raised similar objections to the Commission's band-clearing approach.

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[113] NPRM in ET Docket No. 92-9, at para. 21.

## 1. De Facto Freeze Should Be Lifted

UTC noted that the FCC's de facto "freeze" on the filing of applications for new 2 GHz microwave licenses is unnecessary, and that since the specific technologies that will share this band have not even been identified yet, there is no reason to foreclose additional use of this band for fixed microwave. BellSouth Corporation (BellSouth) notes that it is unlikely "speculators" would risk applying for fixed microwave licenses -- and building stations -- on the off-chance that a new service provider might pay for the cost of those facilities plus a premium.[114/] Similarly, Vanguard Cellular suggests that to deter speculative filings on the common carrier microwave frequencies, the construction period could be reduced to 9 or 12 months and to limit the availability of extensions of time to construct.[115/]

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[114/] BellSouth, p. 9.

[115/] Vanguard Cellular, p.11. It should be noted that this restriction would not be necessary in the case of private microwave systems licensed under Part 94, since Section 94.51 of the Rules already requires each station to be made operational within 12 months of license grant or the authorization cancels automatically. Further, the Private Radio Bureau's licensing staff gives careful scrutiny to requests for extension of time to construct, so it is doubtful whether speculators would find much satisfaction even if they did apply for microwave licenses on the hope of selling out to new technology licensees.

PSMC points out the hardship created by the freeze on applications for new microwave licenses needed to interconnect "wide-area" land mobile radio systems. These systems are not limited to Public Safety radio systems, and many utilities are constructing, or plan to construct, sophisticated 800/900 MHz trunked land mobile radio systems covering very large service territories.[116/] As explained by the Region 20 Public Safety Plan Review Committee, it is unreasonable for the Commission to encourage the development of land mobile communications systems and to then withdraw a critical component needed to deploy these systems.[117/] This is particularly a problem for radio systems which are also granted "slow growth" status: although the land mobile authorization may permit deployment over a three-year period (or longer), microwave licenses needed for base station interconnect are conditioned on construction being completed within 12 months.[118/] Therefore, some land mobile systems are under development pursuant to slow-growth licenses, but may have

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[116/] The licensing of "wide area" land mobile systems by Power Radio Service eligibles (i.e., electric, gas and water utilities) is specifically recognized in Section 90.631(g).

[117/] Legislative Affairs Committee of the Region-20 Public Safety Plan Review Committee, pp.3-6.

[118/] "Slow growth" licenses may be granted for the construction of large-scale public utility radio systems under Section 90.629.

to be re-engineered if the Commission does not continue to grant 2 GHz microwave licenses on a primary basis.

### 2. Co-Primary Status Is Unworkable Without Interference Criteria

In the NPRM, the FCC proposed that fixed microwave stations could remain in the band on a "co-primary" basis with new technology users for a fixed period of time, such as 10 or 15 years. However, the FCC has not defined "co-primary" or the interference criteria for band-sharing, which will be impossible to define until the FCC specifies what technologies will be permitted to share the band.

This "Catch-22" was observed by many of the commenters in this docket.[119/] Central Power and Light Company (CP&L) succinctly described the quandary posed by the Commission's proposal for co-primary status: if two users are "co-primary," and neither is secondary, then neither user is obligated to resolve interference problems, and neither party has the authority or the responsibility to resolve these issues in a timely manner. Therefore, "co-primary" is functionally equivalent to "secondary" to the

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[119/] EEI, p. 19; Montana Power Company (MPC), p. 5; NRECA, p. 8; Questar Corporation (Questar), p. 9; and Atlantic Electric, p. 10.

user most likely to suffer harmful interference from the other user(s).[120/]

The potential for interference between fixed microwave and "new technologies" -- whatever they might be -- is a very real concern. Even for some technologies touted as leading candidates for an emerging technologies band, it is far from settled that band-sharing is feasible. BellSouth noted that attempts at proving band-sharing have thus far been less than conclusive, and that potential conflicts must be handled on a case-by-case basis.[121/]

Even some of the new technology proponents admit that band-sharing may not be feasible. Motorola, for example, indicates that band-sharing should not be relied upon, since it would limit coverage and restrict operation of unlicensed radio equipment.[122/] PCNS-NY, a LOCATE Company (Locate), likewise states that sharing of the 2 GHz band is not feasible because of interference.[123/] Time Warner Telecommunications, Inc. (TWT) believes it will not be possible for fixed microwave systems and new technologies to co-exist indefinitely, and suggests that studies

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[120/] CP&L, p. 3.

[121/] BellSouth Corporation, p.6.

[122/] Motorola, pp. 17-18.

[123/] Locate, p. 30.

claiming otherwise are based on overly optimistic and/or technically faulty assumptions.[124/] Two prospective satellite users of an "emerging technologies" band similarly cast doubt on the viability of co-primary band-sharing with fixed microwave.[125/] It is also generally conceded that unlicensed radio services, such as Apple Computer's so-called "Data-PCS" could not be used on a band-sharing basis with fixed microwave.[126/] Finally, comments indicate that the Telecommunications Industry Association (TIA) strongly opposes the operation of wide-band spread spectrum systems on an "overlay" basis with fixed microwave due to the uncontrolled nature of such systems which could cause unacceptable levels of interference and unpredictable service interruptions to fixed microwave systems.[127/]

In short, the Commission's proposal for "co-primary" band-sharing implies good-faith compromise and

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[124/] TWT, pp. 4, 11.

[125/] Communications Satellite Corporation, p. 18 (fixed microwave could share with Mobile Satellite Service on a transitional basis only); and AMSC Subsidiary Corporation, p. 8 (general consensus is that Mobile Satellite Service and terrestrial-based systems cannot share spectrum).

[126/] Apple Computer, Inc., p. 4. Similarly, McCaw Cellular Communications, Inc. indicates that an exclusive allocation for unlicensed services may be required. McCaw, p. 23.

[127/] Alcatel, pp. 15-16.

accommodation, but the reality is there is little in the way of hard, empirical evidence that new technologies can be introduced on a non-interference basis to fixed microwave systems. Rather than forcing fixed microwave uses to accept secondary status disguised as "co-primary" status, the Commission should put the burden squarely on the new technology proponents to demonstrate non-interference and to operate on a non-interference basis by affording new technology licensees secondary status vis-a-vis previously licensed private microwave systems. This licensing concept was raised by UTC, and was suggested by other parties as well.[128/] Although it does not use the term "secondary," BellSouth argues that the burden should be on the new applicants to prove non-interference, both when service is initiated and as the service is to function when fully developed.[129/] UTC agrees, and urges the Commission to clarify "co-primary" status by proposing specific interference standards, or to clarify the interference protection rights of fixed microwave users by allowing new technologies to share these bands only on a secondary, non-interference basis.

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[128/] Questar, p. 9; and Atlantic Electric, p. 10.

[129/] BellSouth, p. 6.

### 3. Primary Status For Fixed Microwave Must Be Indefinite For All Users

In its Comments, UTC objected to the FCC's proposal to permit most existing 2 GHz licensees to remain in the band on a co-primary basis with new services for only a fixed period of time, such as 10 or 15 years.[130/] In addition, UTC argued there is no rational basis for the FCC to grant indefinite co-primary status to state and local government licensees while limiting all other users to a fixed period of time.

UTC's objections were echoed by most of the existing users of the band, as well as several of the new technology proponents.[131/] First, it was pointed out that if the Commission is willing to permit state and local government agencies to maintain microwave stations in the band on an indefinite primary basis, then there is no technological reason why all microwave systems should have to vacate the

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[130/] UTC, pp. 74-76.

[131/] Pacific Telesis, p. 14; Organization for the Protection and Advancement of Small Telephone Companies, p. 7; API, p. 30; NRECA, p. 8; AGA, p. 7; EEI, p. 16; LPPC, pp.31-32; INGAA, p. 10; Texas Gas, p. 8; United Telephone Companies, p. 6; Comsearch, pp. 11-12; APCN, pp. 5-6; Telesciences, p. 18; MPC, p. 5; Atlantic Electric, p. 10; McCaw, p. 38; AAR, p. 29; APPA, p. 18; Harris, p. 5; Rocky Mountain Telecommunications Association, p. 12; Telocator, p. 6.

band or accept secondary status at the end of an arbitrary time limit.[132/]

Second, the proposal to allow state and local government agencies to remain in the band on a primary basis indefinitely cannot be based on a "public safety" rationale, since (1) not all state and local government agencies use private microwave for "public safety" purposes, and (2) public utilities and other commercial users also operate microwave systems to support public safety, and have not been proposed to receive indefinite primary status.[133/] Indeed, public utilities provide essential services in support of public safety agencies and in support of the public welfare in general.[134/] Public Service Company of Oklahoma (PSO), for example notes the public safety aspect of public utility service:

> PSO believes that the isolation of downed power lines and the quick restoration of electric service is a serious public safety issue. Consider the possibilities such as disabled traffic signals, darkened streets, potential looting, prople living in their homes who are dependent upon respirators or other special emergency equipment, etc. A loss of electric service is a major pubblic

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[132/] LPPC, p. 29; AAR, pp. 28-29; APCN, pp.5-6; and MPC, p. 5.

[133/] The FCC's proposal to exempt state and local government agencies would, however, offer some relief to state-and municipally-owned power and water authorities.

[134/] AGA, p. 7; EEI, p. 16; and Atlantic Electric, p. 12.

> safety concern, and a concern that PSO believes is similar in priority with police and fire.[135/]

Third, to the extent the Commission is proposing to require new technology licensees to bear all costs associated with relocating existing microwave systems, the cost impact on state and local government systems cannot be used to support the disparate treatment proposed for these systems. Atlantic Electric correctly notes that the proposed public safety exemption implies that a reasonable transition period and flexible negotiations are not adequate to compensate fixed microwave licensees for relocating to other bands.[136/]

Fourth, it was pointed out that some public utilities operate communications systems which are either jointly owned with or interconnected with microwave systems operated by state and local government agencies, such as public power authorities.[137/] Different treatment for the microwave systems of state and local government agencies will complicate the coordination of operations if private-sector users are required to vacate the band at a date

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[135/] PSO, p. 2.

[136/] Atlantic Electric, p. 12.

[137/] KAMO Electric Cooperative, p. 2 and NRECA, p. 8.

certain while the public agencies are allowed to remain indefinitely.

Fifth, it was noted that granting indefinite primary operating rights to one group while forcing all others out of the band will actually disserve the interests of the licensees permitted to remain in the band, because equipment manufacturers will stop supporting the band if there are not enough eligible users.[138/]

Finally, it was pointed out that fixed microwave users would be at a competitive disadvantage in marketplace negotiations if they are forced to accept secondary status, and risk being ejected from their channels, after a set period of time.[139/] None of the comments indicate any serious concern that existing microwave users will hold the spectrum "hostage." In fact, one PCN proponent has proudly announced that it is already successfully negotiating with fixed microwave users to relocate to other bands.[140/]

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[138/] APPA, p. 18; AAR, p. 31. Interestingly, Harris reports that it has been losing about $1,000,000 per month in 2 GHz equipment sales due to the Commission's actions in this docket. Harris, p. 1. This not only supports the position that manufacturers are likely to abandon users of a microwave band if there is not enough of a market, but it also shows how the Commission's action in this docket is actually harming the United States equipment industry.

[139/] INGAA, p. 10; and AGA, p. 10.

[140/] Locate, pp. 4-5, 9, and 23. See also Baltimore Gas and Electric Company, and City of San Diego, California.

### 4. Free Market Negotiations Must Be Permitted

UTC noted in its Comments that all relocation costs for existing users of the 2 GHz band must be provided by the new technology licensees, and that such reimbursement should be arranged through voluntary negotiations. Such free market negotiations were generally supported by most commenters. As explained above, however, free market negotiations cannot occur in an environment in which one of the parties is threatened with complete and absolute loss of bargaining rights at some arbitrary point in time.[141/] As noted by DOE, the net cost to existing users, which determines the effect on energy prices, depends on the provisions established by the FCC for cost reimbursement. Unfortunately, however, the Commission did not propose any specific guidelines or mechanisms for relocation negotiations.[142/]

## B. Response To The Counterproposals Raised in Comments

In the following sections, UTC will respond to several of the relocation proposals raised in Comments.

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[141/] In its Comments, UTC presented its proposal for a delayed implementation of an involuntary license modification procedure to serve as further assurance that fixed microwave users do not intend to reap "windfall" profits from their use of 2 GHz microwave facilities.

[142/] DOE, pp. 3, 5.

1. American Personal Communications

American Personal Communications (APC), a proponent of PCN in the 1850-1990 MHz band, suggests that incumbent microwave users should relocate only when asked to do so by a PCS licensee, and upon identification of reliable alternative frequencies and reimbursement of all relocation expenses.[143/] APC incorporates by reference a relocation proposal it filed in the PCS Inquiry, FCC Docket No. 90-314.[144/] APC's proposal is limited to accommodating "PCS" in the 1850-1990 MHz band. However, since neither PCS nor any other specific "emerging technology" is at issue in this docket, APC's proposal is only partially responsive to the Commission's stated intention in the present docket to develop generic rules on reallocating spectrum for new technologies. Nevertheless, UTC offers the following comments on APC's proposals.

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[143/] APC, pp. 5, 16.

[144/] Supplement to Petition for Rule Making, filed May 4, 1992, in Gen. Docket No. 90-314. APC's decision to file its relocation/reimbursement proposal in the PCS Inquiry rather than the present "spectrum reserve" rulemaking confirms UTC's basic premise that the present docket is not an appropriate forum in which to discuss general spectrum reallocations, spectrum sharing techniques, or relocation programs. As APC's filing points out, it is impossible to segregate the interrelated issues involved in spectrum reallocations and to discuss relocation in a vacuum. A program that might work for one proposed service might not work for another, either because of complications in the target band, or because of unique licensing considerations (such as band-licensing or unlicensed operations).